REMARKS

Applicant gratefully acknowledges the Examiner's determination that claims 1-3, 5-25 and 27-29 contain allowable subject matter (Office Action, dated August 10, 2004, page 7, lines 11-14).

The specification has been amended to correct a minor typographical error.

Claims 1-8, 11, 13, 16, 17 and 20-29 have been amended. Specifically, claims 1-5 have been amended to replace the pronoun "it" with the corresponding term, and to recite that "the array of records is stored in a computer readable medium of a computer system" as supported on page 16, lines 18-31, of the application as originally filed.

Furthermore, claims 1-4 have been additionally amended so as to replace the term "record number" with the broader term --storage position number specifying the position of the array of records-- as supported on page 21, lines 21-23, of the specification which discloses that subscripts may include the record number for specifying elements of an array of pointers to the value list (pointer values), or pointer values within the pointer array for specifying field values of the value list, and on page 22, lines 20-30, of the specification that discloses a number that indicates the position of the subscript (storage position number) is initialized in step 1101. In other words, by replacing the term "record number" with the broader term --storage position number--, as supported by the originally filed specification, the subscript is not limited to being the record number but covers any number that specifies the position of the array.

Claim 4 is additionally amended so as to delete the phrase "of records containing a filed and the field values contained therein" because, in accordance with this embodiment of the present invention, the array containing values to be converted is not limited to being an "array of records" as supported on page 21, lines 10-17 and lines 22-25, of the specification as originally filed. Thus, the phrase "array of records" is replaced with the broader term --first array--. In particular, the instant specification discloses that it is possible to perform the insertion, deletion and updating of elements without changing the positions of elements (stored values) contained within the array, and without changing the values themselves. The specification, on page 21, lines 22-25, further discloses that the

arrays may include arrays of pointer to value lists, value lists, and arrays of pointers to record numbers or the like.

Claims 6 and 7 have been amended to replace the term "and/or" with the phrase "and optionally" to improve clarity. This amendment has no limiting effect on claim scope.

Claims 8, 11, 13, 16, 20, 22 and 27-29, which were each dependant directly upon independent claim 5, have all been rewritten in independent form incorporating the subject matter of base claim 5. Thus, the present amendment has no limiting affect on the scope of claims 8, 11, 13, 16, 20, 22 and 27-29.

Claim 17 has been amended to recite that "the array of records is stored in a computer readable medium of a computer system" as supported on page 16, lines 18-31, of the application as originally filed.

Claim 21 depends upon both claims 8 and claims 20. Claim 21 has been amended to incorporate the subject matter of claim 8. Therefore, claim 21 is presently dependant on only claim 20. The present amendment has no limiting effect on the scope of claim 21.

Claims 23-26 have been amended so as to replace the pronoun "it" with the corresponding term, and to replace the term "record number" with the broader term -- storage position number specifying the position of the array of records-- as supported on page 21, lines 21-23, of the specification which discloses that subscripts may include the record number for specifying elements of an array of pointers to the value list (pointer values), or pointer values within the pointer array for specifying field values of the value list, and on page 22, lines 20-30, of the specification that discloses a number that indicates the position of the subscript (storage position number) is initialized in step 1101. In other words, by replacing the term "record number" with the broader term --storage position number--, as supported by the originally filed specification, the subscript is not limited to being the record number but covers any number that specifies the position of the array.

Claim 26 is additionally amended so as to delete the phrase "of records containing a filed and the field values contained therein" because, in accordance with this embodiment of the present invention, the array containing values to be converted is not limited to being an "array of records" as supported on page 21, lines 10-17 and lines 22-25, of the specification as originally filed. Thus, the phrase "array of records" is replaced

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with the broader term --first array--. In particular, the instant specification discloses that it is possible to perform the insertion, deletion and updating of elements without changing the positions of elements (stored values) contained within the array, and without changing the values themselves. The specification, on page 21, lines 22-25, further discloses that the arrays may include arrays of pointer to value lists, value lists, and arrays of pointers to record numbers or the like.

The present amendment adds no new matter to the instant application.

The Invention

The present invention pertains to data processing methods and apparatuses for processing large amounts of data using a computer or other information processing apparatus, and particularly to the updating, deleting, inserting and transaction processing of table-format data that constitutes a database. In accordance with the present invention, a first method embodiment of inserting table-format data is provided having the steps recited in claim 1, a second method embodiment of deleting table-format data is provided having the steps recited in claim 2, and a third method embodiment of updating table-format data is provided having the steps recited in claim 3.

In addition, in a first apparatus embodiment in accordance with the present invention a computer-readable recording medium is provided recorded with a data insertion program having the features recited in claim 23. In a second apparatus embodiment in accordance with the present invention a computer-readable recording medium is provided recorded with a data deletion program having the features recited in claim 24. In a third apparatus embodiment in accordance with the present invention a computer-readable recording medium is provided recorded with a data up-dating program having the features recited in claim 25.

Various other method and apparatus embodiments, in accordance with the present invention, are recited in the other dependent and independent claims. The various method and apparatus embodiments in accordance with the present invention provide computer implemented methods and apparatuses that can manage and analyze table-format data of a database with the advantage that performance instability, when analyzing large numbers of records in a voluminous database, is minimized. Consequently, the methods and

apparatuses, performed and made in accordance with the present invention, can more quickly and appropriately perform insertion, deletion and updating operations for data in a database than what is presently available in the prior art.

The Rejections

Claims 1-16 and 18-29 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-22 stand rejected under 35 U.S.C.§ 101 as being directed to non-statutory subject matter.

Claims 4 and 26 stand rejected under 35 U.S.C. § 102(b) as anticipated by Pasquariello (U.S. Patent 5,687,377).

Applicant respectfully traverses the rejections and requests reconsideration of the present claims for the following reasons.

Applicant's Arguments

Claims 1-29 are now in compliance with 35 U.S.C. § 112.

Examiner's Section 101 Rejection

The Examiner asserts that claim 1-22 do not recite statutory subject matter in accordance with 35 U.S.C. § 101. In view of the present amendment, independent claims 1-3, 5, 8, 11, 13, 16, 17, 20 and 22 now recite that the "array of records is stored in a computer readable medium of a computer system" as supported on page 16, lines 18-31, of the specification as originally filed. Independent claim 4 now recites that "the first array is stored in a computer readable medium of a computer" as supported on page 16, lines 18-31, of the originally filed specification.

Thus, independent claims 1-5, 8, 11, 13, 16, 17, 20 and 22 presently relate to computer implemented methods technically embodied in a computer system. The methods optimally manipulate data in the computer system for the purposes of updating, deleting, inserting and/or implementing transaction processing of table-format data of a database stored in the computer, which provides a useful, concrete and tangible result in accordance with State Street Bank & Trust v. Signature Financial Group, 47 U.S.P.Q.2d 1596, 1601

(Fed. Cir. 1998), and as recognized by the United States Patent and Trademark Office (USPTO) (See MPEP § 2106, p. 2100-18, wherein the USPTO lists a "computerized method of optimally controlling transfer, storage and retrieval of data" as statutory subject matter). Therefore, Applicant asserts that claims 1-22 presently recite statutory subject matter in compliance with 35 U.S. C. § 101.

Examiner's Section 102 Rejection

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. <u>Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick</u>, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984).

The Pasquariello Patent

U.S. Patent 5,687,377 to Pasquariello (hereafter, the Pasquariello Patent) teaches a "method for storing variables in a programming language" wherein, in a system for storing array variables in a programming language, all subscripts are converted into strings, and stored along with the name of the array, allowing strings to be used as subscripts (See Abstract). The Pasquariello Patent teaches a method of converting subscripts into strings so that when the array subscript is another variable, the contents of the subscript variable are converted to a string that is stored along with the array name (See Abstract). In this way, the type of data stored in a variable is stored with the data so the type can be changed dynamically, and each array element can have a different data type (See Abstract).

On the other hand, the method embodiment of the present invention recited in claims 4 and 26 converts "values in table-format data represented by a first array" wherein the value conversion method comprises the steps of : (a) "generating a value conversion array...;" and (b) "...the value conversion array accepts a storage position number specifying the position of the first array as a subscript and gives an offset value corresponding to the range of said value in the first array to the value corresponding to said subscript within said first array" as recited in these claims.

In other words, <u>the method taught by the Pasquariello Patent does not include any of the steps recited by claims 4 and 26</u> because the Pasquariello Patent teaches a method of

converting array variables into strings so that the type of variable can be changed. One example of this variable conversion taught by the Pasquariello Patent is the conversion of an integer data type to a single string variable (col. 4, lines 10-25). The presently claimed methods recited by claims 4 and 26, in accordance with the instant invention, simply convert values in the first array to an offset value corresponding to the range of value in the first array. The type of variable remains unchanged in accordance with the present invention.

Conclusion

In view of the present amendment, claims 1-29 are in compliance with 35 U.S.C. §§ 101 and 112. Therefore, claims 1-3, 5-25 and 27-29 are allowable for the reasons of record.

In addition, the rejection of claims 4 and 26 under 35 U.S.C. § 102(b) as anticipated by the Pasquariello Patent is untenable and must be withdrawn because the Pasquariello Patent teaches a method of converting variables from one type to another, and does not teach or suggest a method of converting data values comprising the steps of: (a) "generating a value conversion array…;" and (b) "…the value conversion array accepts a storage position number specifying the position of the first array as a subscript and gives an offset value corresponding to the range of said value in the first array to the value corresponding to said subscript within said first array" as recited in these claims.

For all of the above reasons, claims 1-29 are in condition for allowance and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for applicant.

Respectfully submitted,

GRIFFIN & SZIPL, P.C.

SZIPL, Joerg-Uwe
Reg. No. 31,799

GRIFFIN & SZIPL, PC
Suite PH-1
2300 Ninth Street, South
Arlington, VA 22204

Telephone: (703) 979-5700
Facsimile: (703) 979-7429
Customer No.: 24203